

READINGGUIDE

Internship – Zeliox

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Introduction

This document contains the process of we went through this internship period, information about our assignment and our goal. Furthermore, we talk about what tools and method we used for our project, for more information read this document.

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Internship info

Zeliox specialises in making mobile power supplies; these power supplies are used for a company vehicle to provide electricity for many devices. They have been working for years with various installation specialists who want to apply a simple yet innovative mobile power supply at any location.

The R&D engineers, specialised in industrial design, electrical engineering and software engineering, want to further improve on the compliance process. The situation is as follows, Zeliox directly assembles their products into a customer's vehicles. However, there is no "formal proof" within the process of actually assembling the Zeliox inside a car.

Assignment

Zeliox is a subsidiary of Brover, Brover has commissioned to develop a new app. Brover wants to use the app to record company cars that come in and leave, so they can immediately check the cars and look for damage.

The assignment is to develop a user-friendly app for recording company vehicle. This assignment mainly focuses on the design and front-end development. The requirements of this assignment are: 1) It must be automated, 2) user-friendly for all users involved, 3) the design is based on research and 4) deliver a high fidelity prototype.

This assignment contains a number of functionalities such as taking pictures, being able to post a comment, to identify a car. The biggest part of the assignment will be researching the target audience to make the best design possible for the user. Therefore, we will use a design principle.

Goal

Our goal is to develop a new user-friendly app, which is used to record cars that come in and leave. Furthermore, the app needs to have a flawless user experience. To reach this goal, we need to do research and use "human centered design".

Learning agreement

Learning outcome	Context	proof
Learning outcome 1:	Autonomously find and acquire an internship assignment which builds upon previously acquired knowledge and skills.	<p>I looked for an internship myself, Zeliox is not a partner in education.</p> <p>I then contacted the company and asked if they had an internship assignment related to programming or UX and Design.</p>
Learning outcome 2:	Perform a problem analysis resulting in a clearly defined assignment covering the core aspects and intended results.	<p>I have planned a meeting with the company before the internship period to gain more insight into my assignment, where I have collected information about my assignment.</p> <p>I then incorporated the results into my action plan.</p> <p>Once my internship had started, I did my own research into the current system. I also looked at the requirements and wishes.</p> <p>In the define phase I made a define document according to which I document the core problem.</p>
Learning outcome 3:	Work independently, according to plan, and methodically correct in a realistic practice situation, and work with a research attitude to collect, organise and select the appropriate information, resulting in professional products.	<p>At the beginning of the internship, we wanted to agree that we would work with the double diamond and scrum method.</p> <p>We did this too; we divided the project into the 4 phases of double diamond each of this phase had 2 sprints every sprint of 2 weeks.</p> <p>Furthermore, I have used CMD methods for my research. I extracted the important information and made an empathy map.</p> <p>Then I determined the problem in the define phase and came up with a plan on how to solve this problem.</p>

		Also, for the design I first presented various elements to the users and then took the results into a final design.
Learning outcome 4:	Reflect on your own qualities and preferences in relation to your functioning in the working environment now and in the future.	At the end of the internship I wrote a reflection document in which I reflect on my internship period and tell what went well, what didn't went well and what I could possibly do better next time.
Learning outcome 5:	Communicate and collaborate efficiently and functionally with colleagues and other (external) stakeholders in a realistic practical situation.	<p>I had a lot of contact with the internship supervisor, every 2 week we had a progress meeting, the main cumulation went through Slack and Jira. Where I update what I had done for each task.</p> <p>I must honestly say that I made a big mistake that I was not present on the return day at school. Fortunately, I was still able to ask for feedback from my semester coach.</p> <p>I also worked on another project together with a colleague. We also had to communicate a lot with each other, this mainly went through Slack.</p>

Approach, implementation and results

In the first week of my internship, we wrote the project plan as we came up with the planning and approach, we also came to an agreement regarding communication. Within the planning there are few phases and sprints. If you would like to see the planning, I would recommend reading the “**Project plan**”.

Research

In the next 4 week of my internship we focused on orienting, in this phase we research and gathered more information regarding our project. As a result, we had a better understand of the assignment. After this we began with the first phase researching.

We wanted to gather answer on “What parts of the process should be simplified (UI), using technology, so that the target audience can use the app without external assistance?” First, we needed to know more about our target audience and the current system. Therefore, we did field research and held an **interview** with the people uses the app. This gave us a better view about our target audience.

Next, we did field research, and did a **Participant observation** with the users. We did this as we wanted to know their wishes and needs, after all we found out there were a lot of bugs and improvement points on the current system which made the app feel like a BETA version. To improve the points

We made a **persona** as we wanted to create our ideal target audience. We did this because we can combine important things from multiple users and implement this to one user. In addition, we made **empathy map** to combine our research insights and to get a clear overview about what our target audience wants, says, like, dislikes and more.

We even did field research, to be exact a **Survey** To be able to get answer on our research question “What are the abilities of our target group, regarding technology. So that we can take their abilities into account with the UI”. So that we can take it into account with the UI. We didn’t have any good insights, because I didn’t setup a good question and didn’t knew how to analyze the answer.

Define

After the research phase, we moved on to the define phase. In this phase we analysed our findings from the research phase and defined our problem which was “There is a lot of small problems, all these small problems combined created a bad user experience”. We came up with solutions to make a new native app in Flutter. We advise to use a native app for a native app because Brover wants to switch to digital working soon and therefore they want to use a flutter app. And it has better hardware support then a PWA, the reason we wanted to program with Flutter is because then the app is compatible with IOS and Android. Furthermore, to get answers on our sub question “Which aspect of the design principle suits the best for our project, regarding the vehicle intake and check app. So that we can design the best suitable UI for our target audience”. We did literature research on **design principles**. We compared different design principles and chose the one that fits the best for our project. Next, we defined what tools and methods we are going to use, to succeed this project.

Design

After define phase we started with the design phase, we worked on this for 2 weeks. Therefore, we started to gather some inspirations, we looked at buttons, steppers and cool designs that would fit our project. We decided to ask the user which button and stepper they think is user friendly. Therefore, we did field research and used a survey to get answers. As a result, 50% from the 10 users choose for stepper 1 and for the button 70% choose for the Neomorphism button.

First, we started to create a wireframe, we chose for a simple wireframe because we wanted to create a minimum viable product. This was done very fast; with this we got a view of how the app could look like.

After this, we create a design which was more detailed version 1. This version had few changes in the home page and the menu bar. Also, we create a visual hierarchy that matches the user's needs with the use of our color, contrast and highlighted the important things.

Meanwhile, we have taken the design principles into account when making the design. For example, we have ensured that there is little distraction for the user, so that he/she can complete their tasks without being disturbed.

After talking to our target audience and the product owner we got some feedback on the design, to meet their wishes, we created a new design. This version 2 is high quality prototype, we implemented the morphism button design, and chose for a rounded stepper. This gave a more professional look.

Version 2.1 was created, where we found our users didn't know the scrollable part. Furthermore, orange was not the same as the Brother's orange. We managed to change the color.

We did a user test to find out if this design was user friendly, we did this through Maze. The result was very positive, almost everybody can navigate through the app. There were few prototype errors. Next time we must make a better prototype with no errors.

In the **Design document** we documented this phase in more detail with images. We also have a substantiation of how we have used the design principles.

Realisation

After the design phase, we started the develop phase, we chose to use the current Git environment which was already used for the current app. We chose to do this because the current app has few components which we can reuse.

We started to learn flutter, since we didn't have a lot of knowledge. We started to learn the basics and the layout structure. Soon we found out about widgets and classes and that it was built like a tree of widgets. We then made the front-end of the home page.

Next, we needed to make a stepper, our internship supervisor told us to make a custom stepper. This was because the material stepper was not nice to work with and after all making a custom stepper would help a lot with gaining knowledge about programming. We had to learn about state management. I spent a very long time in this part of programming as I found it quite difficult.

This stepper is the core navigator throughout the app, each step is loaded by changing steps. After the stepper was successful build. We started with developing step 1 entering VIN (Vehicle identification number), this went easy, we reused the scanner widget from the old version. Next, we made step 2, here we wanted the VIN to be visible on each step. We couldn't do this because each step made a new route. To solve this, we did some research on the web and found out about MVVM (model view, view model). With this we managed to send information from view to view-model and able to show the VIN on each step.

Foreach steps made different components, as result we could reuse a component. Step 4 was a bit difficult and was a struggle as we wanted to take pictures and show the images in a list view. Therefore, we had to work with list of XFiles.

Deliver phase

Since we don't have time to finish the app, there are still things that need to be done. There are still a few important things to do to improve the user experience.

We advise to set the button to "no" in step 3 by default and to change the border colour to orange. This ensures that few mistakes are made. It also speeds up the process and shows which button is selected, right now it's not clear which button is selected. Furthermore, there need to be a scroll bar so users know they can scroll on this part.

We recommend in step 2 to filter the VIN and automatic fill the car brand and type, this prevents mistakes by the user and speeds up the process. Maybe in step 2 a possibility to add a license of a vehicle.

To improve the user experience in step 4, we give users the ability to delete an image by clicking on the "x". There is a possibility that people take a wrong photo, they must be able to remove it.

Also, the background needs to match the design right now it's just an orange container. Add on the top bar an icon of the task. For example, an intake icon or check icon. This shows users the action they were doing.

To make this app working we recommend developing the vehicle check part. We also advise to use the custom stepper we build. This won't take long as we can reuse the code from intake part. The check part is built in 2 steps scan or type the VIN part and image part, where user can take picture of the vehicle.

Reflection

Looking back at this internship period, we learned a lot. Specially programming with flutter. In the first place, it was very difficult to work with flutter. After a lot of research and programming we were finally able to build the design in flutter.

My goal was to learn about design principles and to make a design like a professional. We did learn a lot about design principle there are a lot of design principle for each design. We still must learn a lot about designing but I'm glad we did this project. It was very challenging.